

WHAT IS CLAIMED IS:

1. In a take-up spool suitable for the use in forming a banded coil of flaccid products on a mandrel of said spool, said improvement comprising:

A. a take-up spool having at least two complimentary components, including an expandable mandrel and a tapered ring,

said expandable mandrel consisting essentially of multiple, essentially curvilinear sections, circumferentially arranged in an array around the axis of rotation of said take-up spool,

said tapered ring adapted for insertion into said expandable mandrel and including (1) a centrally located arbor, (2) means associated with said arbor for exertion of radial forces upon said curvilinear sections of said expandable mandrel, so as to permit changes in diameter in said expandable mandrel, and (3) means for engagement of said ring and said flange, so as to effect transfer of torsional forces from said flange to said ring; and

B. means for engaging said tapered ring with said expandable mandrel so as to cause said tapered ring to exert radial pressures upon expandable mandrel and thereby effect variation in the cross-sectional diameter of said mandrel.

2. The improved take-up spool of Claim 1, wherein said tapered ring comprises an expandable chamber and a collapsible cone within said chamber.

3. The improved take-up spool of Claim 2, wherein said tapered ring further includes means for compression of said collapsible cone, and thereby an increase in cross-sectional of said expandable chamber.

4. The improved take-up spool of Claim 3, wherein said tapered ring further includes means for engagement of said expandable chamber of said tapered ring and said expandable mandrel, so as to also cause an increase in cross-sectional diameter of said expandable mandrel upon increase in diameter of said expandable chamber of said tapered ring.

5. The improved take-up spool of Claim 1, wherein said expandable mandrel includes a series of grooves or channels, corresponding to a series of slots in each of said flanges on each end thereof, so as to allow for the passage of banding material from one flange to the other and under of a bundle or coil of flaccid product while said flaccid product is supported on said mandrel and before said flaccid product is removed from said mandrel.

6. A method for forming a banded coil of flaccid product comprising:

A. Providing a take-up spool having at least two complimentary components, including an expandable mandrel and a tapered ring,

said expandable mandrel consisting essentially of multiple, essentially curvilinear sections, circumferentially arranged in an array around the axis of rotation of said take-up spool,

said tapered ring adapted for insertion into said expandable mandrel and including (1) a centrally located arbor, (2) means associated with said arbor for exertion of radial forces upon said curvilinear sections of said expandable mandrel, so as to permit changes in diameter in said expandable mandrel, and (3) means for engagement of said ring and a

removable flange of said spool, so as to effect transfer of torsional forces from said flange to said ring; and

B. Providing means for engaging said tapered ring with said expandable mandrel so as to cause said tapered ring to exert radial pressures upon expandable mandrel and thereby effect variation in the cross-sectional diameter of said mandrel;

C. Causing flaccid product to be wound around said mandrel of said spool so as to form a wound bundle of flaccid product upon said mandrel of said spool;

D. Banding said wound bundle of flaccid product into a self-supporting coil with banding materials while on said mandrel; and

E. Removing said removable flange from said spool, and thereby effect release of said self-supporting coil from said mandrel.

7. The improved method of Claim 6, wherein said tapered ring comprises an expandable chamber and a collapsible cone within said chamber.

8. The improved method of Claim 7, wherein said tapered ring further includes means for compression of said collapsible cone, and thereby an increase in cross-sectional of said expandable chamber.

9. The improved method of Claim 8, wherein said tapered ring further includes means for engagement of said expandable chamber of said tapered ring and said expandable mandrel, so

as to also cause an increase in cross-sectional diameter of said expandable mandrel upon increase in diameter of said expandable chamber of said tapered ring.

10. The improved method of Claim 6, wherein said expandable mandrel includes a series of grooves or channels, corresponding to a series of slots in each of said flanges on each end thereof, so as to allow for the passage of banding material from one flange to the other and under of a bundle or coil of flaccid product while said flaccid product is supported on said mandrel and before said flaccid product is removed from said mandrel.